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ABSTRACT

A 56-citation review is presented of literature on chronic illness or chronic health problems in school-aged children, as well as policies connected with the medication a child may be taking for management of a physical condition. The initial section discusses the prevalence of chronic health problems, the psychological manifestations, the relationship of mainstreaming as it pertains to chronic health problems, and the relationship of health problems with school performance. A review is given of the ramifications of medication administration for school personnel. A general overview is presented of several chronic health problems, with special emphasis on what a teacher should know about the disease, its treatment, and how the child should adjust to the classroom. Problems discussed are: hemophilia, cancer, cardiovascular problems, vision problems, hearing problems, epilepsy, diabetes, allergy, asthma, weight problems, and nutritional problems. (JD)

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AN ANNOTATED BIBLIOGRAPHY OF IDENTIFYING AND MEETING THE NEEDS OF THE STUDENT WITH CHRONIC HEALTH PROBLEMS

by

Karen M. Greenlee

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Study directed

by

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Submitted in partial fulfillment of the requirements
for the course E591--Exit Project
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INTRODUCTION

One result of the passage of P.O. 94-142(Education for All Handicapped Children's Act of 1975) has been the increased awareness that children with handicapping conditions often have special needs which must be met in the school environment as well as at home. It was decided that the child should be placed in the least restrictive environment, although programs for that child would be constructed on the basis of his/her individual needs.(Abeson and Zettel:120, 124) While the Act was reasonably specific as to who was classified as handicapped, one vague category appeared. That referred to the "other health impaired."(Abeson and Zettel 1977:123) It has been estimated that between 3.3 and 4.8 million children may be classified as "other health impaired." (Isaacs and McElroy 1982:313) Some specific conditions which fell within that domain include "asthma, cystic fibrosis, diabetes, hemophilia, leukemia, seizures and sickle cell anemia."(Isaacs and McElroy 1980:318) There have been other chronic health problems such as "heart disease, tuberculosis, rheumatic fever, nephritis...and lead poisoning" which were also classified as "other health impaired." (Ekstrand 1982:2)

Many children with chronic health problems have been members of regular classrooms.(Guerin 1979) However, not much study has been done on how the child's illness affected his academic performance or his social adjustment in school. (Guerin 1979)

Blake et al. have identified stages through which the school-age child passes as part of his/her psychosocial and cognitive maturation processes. A few areas seemed especially relevant as a foundation for comparing school performance of the chronically ill child with the

healthy child. Blake et al. stated that "sound physical health and emotional freedom to learn are also necessary for success at school." (Blake et al.1970:439) One specific cause of school failure that they noted was emotional problems. They also mentioned that psychologically, a major developmental desire of the child is for membership in a group. The importance of the teacher toward the development of a positive self-concept in the child was also stressed by Blake et al.(Blake et al. 1970) The importance of the teacher in a child's development was also stressed by Cyphert when he related that the teacher was a "significant person" in the life of a child.(Cyphert 1973:216)

A quote by Erickson very concisely stated what sort of emotional effect illness must have on a child. He said that"'All that we learn' (in the process of growing up) 'are certain fundamental means and mechanisms for retaining and regaining mastery. Life is a sequence not only of developmental but also of accidental crises. It is hardest to take when both types of crisis coincide."(Blake et al. 1970:13)

In addition to a health problem itself having the potential to alter school performance, the effects of medication may also affect learning. (Ladd et al. 1980) Many of the children with chronic health problems take medication as part of their medical management.

STATEMENT OF THE PROBLEM

A large number of children with chronic health problems are members of regular classrooms(Guerin 1979). Unfortunately, teachers are not prepared to identify the manifestations both physically and emotionally of children with chronic disease. Many children with chronic health problems are managed with medication. The teacher has not received

training as to the use of medication, the side effects of medication, or what the school's role might be in administering and storing medication.

PURPOSE OF THE STUDY

It was the purpose of the study to review the literature available on chronic illness or chronic health problems in school-age children, as well as policies connected with the medication a child had been taking for management of his/her condition. It was hoped that an educator reviewing the study would have a better understanding of the physical and psychological manifestations of given health problems and an ability to relate those manifestations to school performance. It was also hoped that with a review of common pharmacological treatments, the teacher could become aware of how a given drug affected a child and secondly, the teacher would be able to identify untoward effects of given medications which would necessitate the notification of parents and the child's physician.

ORGANIZATION OF THE STUDY

The study contains a wide variety of discussions. The initial section pertains to the prevalence of chronic health problems, the psychological manifestations, the relationship of P.L.94-142 as it pertains to chronic health problems, and the relationship of health problems with school performance.

Noting that many childhood health problems are treated with medication a review of the ramifications of medication administration for school personnel is given. Due to the high numbers of children with

hyperactivity being treated with medication, several articles are presented concerning that specific disorder and the controversy surrounding the use of psychostimulants to control it.

Due to the advances made by medical technology, many children with cancer are returning to the classroom. Several articles are presented concerning the adjustments required by the affected students, the other classmates, as well as the teacher. Because some of these students may eventually die, the topic of death education is also included.

The remainder of the paper deals with problems associated with various disorders. The student with hemophilia is briefly discussed. Problems of the cardiovascular system are reviewed. Mild problems with the sensory systems of vision and hearing are presented. The student with epilepsy is discussed. A brief presentation about diabetes is given. Two common problems in school-age children, allergy and asthma, are presented. The final section of the paper addresses problems associated with overweight children and nutrition and its relationship to learning and behavior.

LIMITATIONS OF THE STUDY

Medical journal articles discussing the clinical manifestations of disease were numerous and very technical. However, there was a dearth of information concerning the relationship of chronic health problems and medication use in the school environment. A computer search using the ERIC database yielded only a few articles, most of which were irrelevant. Most of the articles specified in the Education Index were presented in The Journal of School Health, which was not among the periodicals

carried by IUSB library. Time was a factor not only in traveling to other libraries, but also to the limitations placed by the academic calendar. Because of the constraints of time and the dearth of literature, a general overview of several, not all, chronic health problems was presented, with special emphasis on what a teacher should know about the disease, its treatment and how the child should adjust to the classroom.

GLOSSARY

absence seizure - - "is characterized by a very brief loss of consciousness lasting from five to 20 seconds " (Anspaugh et al.,36GE)

achromatopsia - -"colorblindness" (Tabor, A-20)

albinism - -"congenital abnormal nonpathological partial or total absence of pigment in skin, hair and eyes " (Tabor, A-49)

allergy - - "an altered reaction of body tissues to a specific substance (allergen) which in nonsensitive persons will, in similar amounts, produce no effect..." (Tabor, A-57)

aortic stenosis - -"obstruction in the region of the aortic valve " (Bleck and Nagel, 151)

atrial septal defect - -"holes occur in the septum separating the two atria or receiving chambers of the heart " (Bleck and Nagel, 147)

asthma - -"a labored wheezing breathing caused by interference with the normal flow of air in and out of the lungs (Bleck and Nagel, 25)

atherosclerosis - - "a form of arteriosclerosis in which there are localized accumulations of lipid-containing material(atheromas) within or beneath the intimal level of blood vessels..." (Tabor, A-138)

aura - - "a premonitory awareness of an approaching physical or mental disorder. In epilepsy the aura may precede the attack by several hours or only by a few seconds. Epileptic aura may be of a psychic nature or sensory with olfactory, visual, auditory or taste hallucinations." (Tabor, A-143)

binocular efficiency - -"the ability to coordinate the eyes, enabling them to work as a team in depth perception, eye tracking, adequate fixation, convergence, and divergence. This is very important in reading."(Spohn,94)

cardiovascular - - "pertaining to the heart and blood vessels " (Tabor, C-21)

coarctation of the aorta - -" the aorta is constricted where the large arterial branch to the left arm arises " (Bleck and Nagel, 151)

complex partial seizure - - "consciousness is impaired and the person will engage in involuntary activity controlled by the portions of the brain where the seizure activity is taking place " (Anspaugh et al., 36GE)

congenital heart disease - -" much more frequent in childhood than the acquired form " (Bleck and Nagel, 143)

direct relationship between nutrition and learning - - "development of the central nervous system is affected by the diet." (Pertz and Putnam, 702)

distant vision - - "the ability to focus the eyes singularly and binocularly at distances of 14 to 16 inches, the average distance for reading and other seatwork " (Spohn, 94)

epilepsy - -"a disorder of the central nervous system characterized by sudden seizures, which usually last only a few minutes " (Anspaugh et al., 34GE)

essential hypertension - - hypertension "without an obvious underlying cause"(Weidman, 213)

field of vision - - "the ability to see the whole picture while focusing on a particular target " (Spohn, 94)

functional vision problems - -"those that involve binocular coordination and a field of vision. Children so afflicted often have poor attention spans and difficulty learning." (Spohn, 94-95)

generalized tonic-clonic seizure - - "a seizure with two phases: the tonic phase is characterized by muscle rigidity and blackout; it is followed by the clonic phase during which the muscles of the entire body jerk convulsively"
(Anspaugh et al., 36GE)

homeostasis - - "the state of relative constancy of body fluids...as to their chemical and physical properties" (Tabor, H-53)

hyperactivity - - "The term commonly refers to manifestations of disturbed child behavior characterized by constant overactivity, distractibility, impulsiventss, inability to concentrate and aggressiveness. Hyperactivity may be based on organic brain damage, associated with mental retardation without evident brain damage, or symptomatic of a behavior disorder. Hyperkinetic behavior usually lessens as the child grows older and usually disappears by adolescence. Syn.: Hyperkinetic syndrome" (Tabor, H-69)

hypertension - - "...high blood pressure..." (Bleck and Nagel, 153)

impedance measurement - - "achieved through the use of an impedance audiometer which measures the compliance or mobility of the tympanic membrane while varying the air pressure in the external canal. It also measures the middle ear when the eardrum is at its most compliant position. These measurements are important because if a pathological condition exists in the middle ear, or if a eustachian tube is not functioning correctly, abnormal readings will be obtained, thereby identifying the possibility of middle ear disease. (Cass and Kaplan, 558)

indirect relationship between nutrition and learning - - "diet affects body's ability to use its innate capacity to learn" (Pertz and Putnam, 702)

innocent murmurs - -"unusual sounds not associated with organic heart disease " (Bleck and Nagel, 153)

juvenile diabetes mellitus - - "the body's main energy source, a sugar known as glucose, cannot be used normally because the body cannot make a hormone known as insulin " (Bleck and Nagel, 123)

Magic Circle - - "discussions enable children to share their feelings with others...The teacher should act as the facilitator and occasionally add his or her feelings." (Ainsa, 400)

patent ductus arteriosis - - a congenital heart defect in which there is "an open passageway between the 2 great arteries arising from the heart, e.g. the pulmonary artery and the aorta " (Bleck and Nagel, 145)

pure-tone screening - - "detects hearing loss greater than the 20-25 decibel levels and it identifies so-called 'educationally significant' hearing problems. But it is difficult to use with many children because of its subjectivity in requiring a response from the child and and interpretation by the tester." (Cass and Kaplan, 557)

physical vision problems - - "those which affect the ability of the eye to see clearly and sharply " (Spohn, 94)

rheumatic fever - -"an acquired heart disease which may occur after a streptococcal infection...other symptoms may include 'fever, arthritis, skin rash, subcutaneous nodules, and chorea'." (Bleck and Nagel, 152)

rhinitis - -"inflammation of the nasal mucosa." (Tabor, R43) Allergic rhinitis-"rhinitis due to a sensitivity of nasal mucosa to an allergen " (Tabor, R-44)

school performance - - related to "pupil academic and social behavior" (Guerin, 161)

serous otitis media - - "the commonest cause of hearing disorders in children five or six years of age.... Serous otitis media has not been considered significant since it does not necessarily lead to permanent hearing loss, and because most children outgrow the problem by age nine." (Cass and Kaplan, 557)

simple partial seizure - - "one in which consciousness is usually retained, but there is some involuntary activity, such as the twitching of a finger" (Anspaugh et al., 36GE)

Tetralogy of Fallot - - "has four components: 1. a large ventricular septal defect 2. and right ventricular obstruction are basic to the physiology of the anomaly... 3. right ventricular hypertrophy 4. overriding or straddling of the ventricular septal defect by the aorta." (Bleck and Nagel, 148)

ventricular septal defect - - a congenital heart defect in which there is "an opening in the wall of tissue (septum) separating the left and right pumping chambers (venticles) of the heart" (Bleck and Nagle, 146)

GENERAL INFORMATION

Ekstrand, Richard E , "Doctors, Do You Make (School) House Calls?" Children Today, 11:2-4, 37. May/June, 1982.

The article descibed the need for joint efforts of the medical and educational teams, as well as the student's parents, in dealing with the health needs of the child. Ekstrand referred to the "other health impaired"category of P.L. 94-142 by relating that the "federal definition: other health impaired means limited strength, vitality or alertness, due to chronic or health problems such as a heart condition, such as tuberculosis, rheumatic fever, nephritis, asthma, sickle cell anemia, hemophilia, epilepsy, lead poisoning, leukemia, or diabetes, which adversely affects a child's educational performance."(p.2) Some confusion had arisen concerning the distinction between what constituted a medical service and what constituted an educational service. For example, in Tatro v State of Texas the "Court decided that clean intermittent catherization is a related service and required the school system to provide it."(p.3) The courts have been the decision-making bodies in other school health situations also. However, Ekstrand pointed out multidisciplinary cooperation on the problem of allergies. He felt that educators and medical personnel must establish viable lines of communication in order to handle the health problems of the school environment. He did, however, express uncertainty as to whether teachers were adequately prepared to deal with health problems.

Cook, Jimmie, "Children in Crisis," Early Years, 13:14, April, 1983.

Cook defined the existence of two types of pain present in children. One was genuine pain which resulted when there was an underlying problem. Some children let the teacher know about it and others did not. The second type of pain was "imagined pain" which was that which persisted after the problem had been corrected. The teacher was advised to be a good listener and discuss the situation with the child, explaining that the pain would go away because the problem had been corrected. Cook suggested some record keeping be done on children who related that they were having pain or children who exhibited behavior suggestive of a problem. Parents should be informed. Cook also cited examples of where observations were helpful in identifying allergies, visual problems, intestinal problems and a tumor.

Isaacs, Jennie, and McElroy, Mary Richter, "Psychosocial Aspects of Chronic Illness in Children," The Journal of School Health, 50:318-321, August, 1980.

It was estimated that between "3.3 to 4.8 million children in the U.S. would be included in the category of 'the other health impaired' as defined by P.L. 94-142." (p.318) Isaacs and McElroy identified six basic reactions which the presence of a chronic disease might have in children. Those children were afraid they would be abandoned. They often misinterpreted the occurence of the disease as a "punishment." Children would also tend to lose self-esteem due to physical changes which resulted from the disease or its treatment. Regularity of school attendance was not a certainty. Restrictions, due to the nature of the disease, were a possibility. They mentioned that the child's friends might have misconceptions about the specific disease and its effects. Isaacs and McElroy discussed problems encountered by the family. They also cited a general lack of teacher preparation to handle certain situations. That lack of preparation could lead to the development of an overly restrictive climate in the classroom, or conversely, one in which the teacher was overindulgent. They pointed out that the teacher should have the opportunity to discuss the situation. They also stressed the need for a cooperative effort among medical and educational teams, as well as the family, to promote an optimum "social, emotional and cognitive development of the child."(p.321)

Abeson, Alan, and Zettel, Jeffrey, "The End of the Quiet Revolution: The Education for All Handicapped Children Act of 1975," Exceptional Children, 43:114-127, October, 1977.

The article traced the history of educational placement of the handicapped and the movement behind the formulation and implementation of P.L. 94-142. It also presented, in detail, responsibilities of schools toward education for the handicapped. Those who were classified as handicapped by the law were specifically mentioned as "mentally retarded, hard of hearing, deaf, orthopedically impaired, other health impaired, speech impaired, visually handicapped, seriously emotionally disturbed, or children with specific learning disabilities who by reason thereof require special education and related services." (p.123) "...Not all children who have a disability require special education, many can and should attend school without any program modification."(p.124) The article discussed individualized plans for children for whom they were appropriate.

Bryan, Elizabeth, "Use of Medical Information in School Planning," The Journal of School Health, 50:259-261, May, 1980.

Medical and educational personnel must contribute to the planning for requirements which are specific to the child with a health problem. The medical component of the student's record identifies the type of health problem which exists. School personnel should acquaint the doctor with the types of services available. The physician should complete a "check list of eligibility criteria" from which school personnel can plan to meet the specific requirements of a given child.(p.259) Especially important, according to Bryan, is the physician's recommendations on the activities in which the child can participate. Equally important is whether or not physical problems may necessitate special accommodations. For example, someone should be assigned the responsibility for assisting a deaf child if the school's "alarm system depends upon a bell or buzzer." (p.259) Bryan felt that "in general, medical information is most useful if it is translated in terms of student functions and capabilities."(p.260) The teacher's observation skills are useful in analyzing how a child is reacting to medications he/she may be taking. Communication with medical personnel is important. An efficient system of medical data storage is a necessity for the school. Because of the frequency and complexity of individualized planning, information should be complete and readily accessible.

SCHOOL PERFORMANCE AND ADJUSTMENT

Nader, Philip and Mahan, J. Maurice, "Measurement of Social Behavior and Performance of Chronically Ill Children," in Chronic Childhood Illness: Assessment of Outcome, U.S. Government Printing Office, DHEW Pub. No. (NIH) 76-877.

Nader and Mahan felt that the school was a logical focal point for organizing and promoting the management of the chronically ill child. Unfortunately, teachers were often unprepared to deal with the task. It was stressed that education of the teacher about disease and treatment be done in order to adequately prepare him/her for being flexible and self-confident in dealing with chronically ill students. It was found that a dearth of published material existed on the relationship between chronic illnesses and school performance. It was suggested that the assessment devices which would be used for that purpose should measure many aspects of "school functioning, such as academic and ability behaviors, cognitive function behaviors, motor performance, and adjustment to environment," but also "be sensitive to changes in a child's behavior, treatment program or the cause of his disease over a relatively short period of time."(p.167)

Guerin, Gilbert R., "School Achievement and Behavior of Children With Mild or Moderate Health Conditions," The Journal of Special Education, 13:179-186, Summer, 1979.

Guerin described a study done in Northern California. Of the 8209 children in the participating schools, 568 were found to have one or more health problems. Using a questionaire, teachers were asked to evaluate various parameters of a child's performance. Specific "dimensions of achievement and behavior were labeled: Ideas, Achievement, Directions, Interaction, and Activity."(p.181) Specific results showed that children with coordination problems scored lower in the Interaction and Activity parameters. Epileptic children received lower scores in Ideas, Directions, and Activity. Hyperactive children were rated lower on all parameters except Activity (those children were taking medication). Using teacher input and student files, an assessment was also made of which students were receiving any type of special assistance. It was determined that 44 percent of those children with physical conditions were not receiving special assistance, 64 percent of those with various health conditions were not receiving special assistance, and 69 percent of those with sensory conditions were not receiving special assistance.

Williams, Kay and Baeker, Marilyn, "Use of Small Group With Chronically Ill Children," The Journal of School Health, 53:205-207, March, 1982.

Williams and Baeker stated that approximately ten percent of the children will be affected by a chronic health problem by the time he/she reaches fifteen years of age. They estimated that nearly thirty-three percent would have adverse psychological reactions to ailment. Williams and Baeker related that the use of small groups of elementary children who were afflicted with some sort of chronic health problem was beneficial toward helping those children accept their conditions. Six children participated in such a program. The group met one hour per week during the time school was in session. The teachers were supportive by assisting the child as he completed lessons he/she failed to complete because of the group meeting. Parental support was obtained before a child joined the group. Teacher and parent input provided useful information for the group leaders. Kinetic Family Drawings were used to ascertain the child's perception of his/her role in the family. Measures of Self Concept K-12 was administered prior to beginning the sessions and again after the sessions were completed. Although success varied among the participants, it was felt that six major goals were reached: "1. knowledge about their own disease 2. knowledge about each other's disease 3. that other children with chronic diseases have similar feelings 4. that they could trust each other and discuss their feelings openly in the group 5. that everyone has their 'own cross to bear' 6. that they were not freaks."(P.206)

GENERAL DISCUSSION OF THE USE OF MEDICATION

Ladd, Frances, T., et al., "Rx in the Classroom," Instructor, 90:58-59, September, 1980.

Ladd et al. constructed a chart which identified medications teachers might see used by their students with chronic health problems. The chart also identified the disease for which each medication was used, its purpose for use and side effects which might develop as the result of use of the medication.

Kinnison, Lloyd R. and Nimmer, Donald N., "An Analysis of Policies Regulating Medication in the Schools," The Journal of School Health, 49:280-283, May, 1979.

With the implementation of P.L.94-142, it was expected that more schools would be placed in the position of having to administer medication to given students. Kinnison and Nimmer felt policies would have to be determined as to where medication is stored, who gives the medication, and other related matters. They did a study for the purpose of assessing what policies were currently in existence regulatingmedication use in the schools. The superintendents of 200 districts were mailed questionaires addressing current policies. 79.5 percent were completed and returned. The results showed that universal agreement was obtained on the need for a physician's order and parental authorization. 32 percent indicated that their particular districts had formal guidelines concerning the various aspects related to medication use by students. Legal ramifications were also mentioned in the article. They recommended that parents, education and medical personnel should cooperate when medication has been prescribed for a child. They also felt it was necessary for school boards to formalize regulations concerning the administration and storage of student medications.

Palermo, Robert A. and Palermo, Eileen, "Teachers Guide to Prescription Drugs for Children," School and Community, 67:20-23, January, 1981.

Palermo and Palermo thoughtfully discussed the effects a chronic illness might have upon a child and pointed out that adjusting to illness can be especially troublesome for those in a young age group. The child might be restricted to certain activities because of his disease, or the medication he is taking may cause him to behave atypically. In both cases, they mentioned that the child feels like he is different from his peers. They felt the teacher could minimize that by discussing the child's health with the school nurse. It was stressed that the teacher avoid interrogating the family, which itself may be in the process of acceptance and adjustment. Specific groups of medications were identified in the article, as well as side effects which might be seen in the classroom. Those drugs which were reviewed fell under the general categories of drugs used to treat psychiatric problems, epilepsy, ulcers, diabetes, allergies, and cancer.

THE USE OF MEDICATION TO TREAT HYPERACTIVITY

Allyon, Teodoro; Layman, Dale; and Kandel, Henry J., "A Behavioral-Educational Alternative to Drug Control of Hyperactive Children," The Journal of Applied Behavior Analysis, 8:137-146, Summer, 1975.

Classroom manifestations of hyperactivity was described as "excessive movement, unpredictable behaviors, unawareness of consequences, inability to focus on and concentrate on a particular task and poor academic performance"(Stewart et al., 1966).(p.139) A 1971 study by Comly was mentioned as one in which teacher feedback on the behavior of hyperactive children was obtained. He found "that of 40 hyperactive children...those children receiving stimulants were rated as having better listening ability, less excitability, less forgetfulness, and better peer relationships."(p.137) Allyon et al. found that some studies showed that medication altered elements that were prerequisites for learning, but they did not feel that those studies evaluated the final outcome of learning. Therefore, they felt it was important to analyze whether "behavioral techniques" as opposed to medication, could benefit the child physically and academically. Three children were observed for changes resulting from the discontinuance of their medication (Ritalin) and the use of token economy reinforcement for academic progress. It was found by the use of a time-sample observation method that the academic achievement of the three children had greatly improved in the reading and math areas in which they were being observed. Data obtained prior to discontinuance of medication had shown poor performance in the reading and math areas. Therefore, they concluded that behavior modification techniques could be useful with hyperactive students in the classroom.

Braun, Samuel J., "Is The Use of Medication Ever Justified For Children Described as Hyperactive in the Classroom?" Day Care and Early Education, 8:47-51, Winter, 1980.

Braun pointed out that he preferred the use of the term "Attention Deficit Disorder" for the syndrome commonly referred to as hyperactivity. He felt that more accurately described the two most common manifestations: "short attention span and increased distractability."(p.47) Braun felt that in order to classify a child with that problem, collaboration of school personnel, the child's parents, and a doctor was required. Other causal factors should be eliminated before the diagnosis is made (such as "boredom, hunger, anxiety...other possible physical causes)." (p.47) Braun felt that the use of medication, usually Ritalin or Dexedrine, could be effective for treating, not curing, the problem. Academic performance had been shown to improve according to Braun, although specific documentation was not available. A second benefit was psychological, as the child could develop a better self-concept by not having attention.called to his behavior.

Robin, Stanley S., and Bosco, James J., "The Teachers' Perspective," The Journal of School Health, 43:624-628, December, 1973.

It was mentioned that the use of Ritalin to control hyperactivity had been the subject of great debate. Robin and Bosco did a study to assess teachers' attitudes and knowledge about Ritalin. A random sample of elementary school teachers in Grand Rapids was obtained. Those 150 teachers were sent questionaires. Of the 77% returning the questionaires, it was found that 85% answered positively to the question "Do you know what Ritalin is used for?"(p.625) 95.6% answered positively to the question "Can you recognize an overactive child?"(p.625) However, less than half responded that they were consulted for their evaluation of a student taking Ritalin. When asked about specific properties of Ritalin, the teachers demonstrated that they were less aware of the more detailed aspects of the drug. Robin and Bosco concluded that "overall, the attitudes of teachers toward the use of Ritalin are cautiously favorable." (p.628) They stressed the need for teachers to be informed about the Ritalin as well as similar drugs. They felt a need existed for that type of information to be disseminated during teacher training.

Kalechstein, Melvin; Hansen, Philip; and Kalechstein, Pearl B.W., "Hyperactivity: Pediatricians'and Teachers' Perspectives," The Journal of School Health, 49:2-23, January, 1979.

Four to ten students per hundred were estimated to be hyperactive. Just what the causes, manifestations and treatments of the disorder are has been subjected to controversy. Kalechstein et al. related that the use of stimulant drugs to treat the problem has increased from "between 150,000 and 200,000 children in 1970 to an estimated 500,000 children in 1978,"(p.20) Kalechstein et al. saw as a major problem the fact that children with various clinical manifestations are being collectively labeled and treated, in spite of the fact that the causal factors had not been identified. They conducted a study to assess the viewpoints of pediatricians and graduate special education students. Questionaires were given to 80 pediatricians and 320 graduate students in special education. 51 of the doctors and 197 of the students completed the forms. Of the parameters being evaluated, that which showed the greatest difference of opinion between the doctors and the graduate students was preference of treatment. The doctors seemed to prefer the use of medication,and the graduate students seemed to prefer special education classes and perceptual motor exercises. The report also noted that 1533 students had been "referred by schools to pediatricians for hyperactive behavior."(p.22). Of those children, 917 had been treated with medication.

SPECIFIC CHRONIC HEALTH PROBLEMS: HEMOPHILIA

Inman, Maribeth, and Corrigan, James J., Jr., "Hemophilia: Information for School Personnel," The Journal of School Health, 50:137-140, March, 1980.

Hemophilia was described as a disorder which is caused by the lack of a clotting factor in the blood which causes its victims to bleed for a longer period of time than the person who has all the clotting factors. One per 4000 males has been affected by the disorder, although females may also be affected. The major problems presented by hemophilia, according to Inman and Corrigan, can result when bleeding affects joint or muscular tissue. They stressed the need for the teacher to act immediately should the child receive any sort of trauma. They mentioned that knees, ankles and elbows were areas that were vulnerable and that one should observe carefully to note if the child is favoring one of these areas. Young elementary children are often aware that they are having problems related to their disease, but they are reluctant to share that information with the teacher due to apprehension about treatment. Inman and Corrigan also noted that absenteeism may occur with hemophilia and stressed the need for the teacher to be flexible. They also related that hemophiliac children usually have the potential to do well academically, but performance falls short of potential in many cases. The need for adequate amounts of exercise was also mentioned, suggesting that swimming would be good for the hemophiliac.

THE STUDENT WITH CANCER

Cyphert, Frederick, "Back to School for the Child With Cancer," The Journal of School Health, 43:215-217, April, 1973.

The child with cancer has the potential for academic achievement and should be encouraged in the same manner as non-affected students. School has been a dominant factor in any child's existence and subsequently, is important for his/her psychological well-being. The teacher must use his/her own observational skills and adjust her/his expectations if the situation warrants. Basically, the child with cancer should be encouraged to work to his/her limits of tolerance, of which he/she is aware. For the teacher to be effective he/she must examine his/her own feelings and knowledge level about the disease; otherwise, misconceptions and resentment may dominate his/her behavior. The teacher must not adopt a sense of futility in teaching the child with cancer. Classmates deserve to be informed, when the affected child is absent, and role-playing often provides a medium by which students can vent their feelings. Accurate information should be given regarding the child's disease, replacing fears of the unknown. For example, one myth is that cancer is communicable. Open lines of communication between all members of the health and educational teams are essential if the child with cancer is to have a beneficial experience when he/she returns to the classroom. Cyphert discussed these, as well as other ideas, to help the teacher who has a student with cancer in class. He noted that teachers have not been trained to handle health problems. Cyphert also remarked that "a teacher is one of a child's 'significant persons.' "(p.216)

Greene, Patricia, "The Child with Leukemia in the Classroom," American Journal of Nursing 75:86-87, January, 1975.

Greene, a clinical specialist in pediatric oncology, discussed ways in which she has worked with educational personnel to help them become more comfortable and informed about the child with cancer in the classroom. She pointed out that chemotherapy has lengthened the lifespan of the child with leukemia. Therefore, she pointed out, the child with leukemia will probably return to school, and it is the function of the teacher to promote an atmosphere which would make the child feel accepted. A lack of preparation for such a situation often presented a predicament for the teacher. Greene noted that consultation with medical personnel could be helpful for the teacher who is unsure of herself/himself and also for relaying pertinent information gleaned from the child. Greene also found the use of a questionaire by the teacher to be helpful in identifying specific concerns he/she might have. After evaluating the questionaire, Greene discussed the medical aspects of the disease with the teacher. She suggested that whenever possible, the teacher should respond to the child as she/he would to any other student. She advised the teacher to maintain open lines of communication with the parents. She also stated that, hopefully, the child's doctor would provide a list of restrictions, if applicable, to the school, which should assist the teacher with her/his planning.

Grollman, Earl A., "Explaining Death to Children," The Journal of School Health, 47:336-339, June, 1977.

The child should be able to discuss death with adults rather than having his/her feelings ignored. The teacher should be candid in admitting that she/he cannot accurately solve all the child's dilemmas. By ignoring the issue of death, the child is being taught to repress things, a trait which may be troublesome for handling reality as an adult. Often attempts to comfort the child by using metaphoric analogies to death can backfire, causing misinterpretation in the child's mind. Comparing death to sleep can make the child feel vulnerable. Death should be discussed as a necessary part of life. The use of audio-visual materials or literature may be helpful. Above all, the teacher should be a good listener and not try to suppress reactions which are a normal part of the grief process. The teacher must also remember that bereavement may last for a long time. Lack of academic achievement and easy distractibility may accompany that process.

Grollman also presented many interpretations of death as seen through the eyes of a child, as well as types of responses children might exhibit in reaction to death.

Fredlund, Delphie J., "Children and Death From the School Setting Viewpoint," The Journal of School Health, 47:533-537, November, 1977.

Fredlund noted that the general tendency was to avoid the subject of death with children. There seemed to be a consensus that the child's concept of death goes through stages as he/she grows older. Fredlund noted that when a child lost a family member before the age of three, he/she senses the feeling of being "separated" but does not comprehend the totality of the situation. During the next two years, she stated that the child views death as a process which is changeable, one which occurs only in the elderly. The child at that level has no concept of his/her own lack of immortality. The child between six and nine years of age understood that death is irreversible, but usually equated it with violence. Fredland related that the child between 10 and 12 begins to get accurate ideas about death but suppresses some of the realities out of fear for himself/herself. Some were convinced that they were to blame for death. Fredlund pointed out that due to medical progess, a terminally ill child may return to the classroom. Children have been found to look toward adults for guidance. She noted the importance of a caring atmosphere and one of acceptance in the classroom. Fredlund felt that the child may turn to the teacher because he/she is unable to discuss certain aspects of his/her problem with the parents. Should a classmate die, Fredlund felt the teacher should be willing to discuss it with the class and may need to utilize other resource people. Children tended to feel vulnerable themselves, and Fredlund felt those feelings needed to be discussed, The teacher was advised to alter, temporarily, her/his goals for a student who has lost someone special.

Kirten, Caren, and Liverman, Marie, "Special Educational Needs of the Child with Cancer, The Journal of School Health, 47:170-173, March, 1977.

Although it is impossible to make universal educational recommendations for all children with cancer, the afflicted child should not be treated as if he/she were different or as if her/his life would be shorter than that of any other student. Individualization is required by the educator. The teacher should be aware that needs will change as the course of the disease changes. However, it is of paramount importance that the child with cancer be exposed to as "normal" a life as possible. Because school is such a major part of childhood, it is important for the child to attend school when possible. The psychological benefits of attending school may also be beneficial physically. The medical team should make educators aware of any limitations on physical activity so the teacher can plan accordingly.

Sachs, Marjorie B., "Helping the Child with Cancer Go Back to School," The Journal of School Health, 50:328-331, August, 1980.

Sachs stated that a coordinated effort should be mounted to assist the child with cancer who plans to return to school. The affected child was often concerned with how his/her friends and teachers would feel about his/her disease. Sachs felt it was important for teachers specifically to know about the disease, how it is being managed, what side effects occur, etc. She/he needed to know about physical changes and restrictions which may occur as a result of chemotherapy. Sachs felt parents should be notified when a case of chicken pox occurred in the school, due to the potential hazards which could occur should the child with cancer contract it. Most important, however, was that teachers and peers should be given factual information in order to promote the development of an atmosphere of "acceptance and understanding."(p.331)

Zwartjes, Georgia M.; Zwartjes, William J.,; and Spilka, Bernard, "Students With Cancer," Today's Education, 70:18-23, November/December, 1981.

Medical technology in recent years has contributed to the increased life expectancy for a child with cancer. The treatment may involve one of two extreme physical changes which would make the child sensitive. In a case in which the child had bone cancer, a limb may be amputated. The other sensitive situation would be the loss of hair which often accompanies chemotherapy. The teacher should use various methods, such as role play, to foster an attitude of acceptance by the other students. The teacher should conduct information sessions for the other children, emphasizing that the disease is not communicable. That should be done prior to the affected child's resumption of school life. The child who would adjust the best is the one with the least noticeable physical changes, and the one with the most positive attitude, as well as the one who was a good student previously. The teacher would be responsible for attending planning sessions about the child's education and would serve as a liason with the home and those responsible for the child's health care. The latter function could be assigned to a different staff member. In order to be effective, the teacher must examine his/her own feelings about death and may need to seek professional advice.

Ainsa, Trisha, "Teaching the Terminally Ill Child," Education, 101:397-401, Summer, 1

Children have a basic right to die with dignity. Excluding the terminally ill child from reality can be as counterproductive as over-indulging him/her. Ainsa identified eight primary needs which were necessary to know when dealing with the terminally ill child: "1. the need to know he or she is dying 2. the need for meaningful communication 3. the need to live to the end with dignity 4. the need to be listened to without anger and with acceptance 5. the need for hope 6. the need to know that he or she is a valuable person 7. the need not to be forgotten 8. the need to maintain self-esteem." (p.398) She also defined the various interpretations of death by children of different age groups. Whereas the child of three to five years of age equates death with separation fromthe parents, the child between six and twelve realizes there is not immortality. The latter group child may try to learn more about his/her disease as part of his/her defense mechanisms. The teacher should not act differently toward the affected child. He/She should be a good listener. He/She may need to develop individualized lessons, but he/she must first know the specific feelings and wishes of the parents and must know the extent to which the child knows about his/her illness. Ainsa pointed out that there is children's literature available about death. She also felt writing projects were useful for helping the child release emotions. Role playing and the Magic Circle also provided helpful release mechanisms. The teenage child who is afflicted with cancer presented an added dimension. He/She is normally at a very insecure stage of life and terminall illness presents added pressures. The teacher should help the child set goals for him/her which are attainable, in order to foster feelings of self-worth and hope.

CARDIOVASCULAR PROBLEMS

Loggie, Jennifer M.H., Systemic Hypertension in the Young," American Journal of Disease in Children, 132:463-465, May, 1987.

Loggie cited the recent interest in childhood hypertension in children. She discussed many research studies which had been done. Of particular relevance was the information imparted by Blumenthal at a symposium (1977). He mentioned that "54% of adult deaths annually are due to cardiovascular disease."(p.463) Hypertension was implicated as a contributing factor in a significant number of those. It was also mentioned that hypertension affects at least "20 million adult Americans ... with the vast majority having the essential form."(p.463) Because essential hypertension may be "familial... and probably has its origins early in life," Loggie stressed the need for checking children routinely. (p.463) She also raised the question as to whether altering certain factors in a person's life could minimize the hypertensive tendency. Her review of studies was interesting, although somewhat technical at times. Studies mentioned included the analysis of relationships between weight and exercise and hypertension, salt and hypertension, stress and hypertension, and oral contraceptives and hypertension as well as others. Loggie cited several problems encountered by those attempting to establish definitive relationships between hypertension and external factors.

Weidman, William H., "High Blood Pressure and the School-Age Child," The Journal of School Health, 49:213-214, April, 1979.

Weidman pointed out that previously hypertension in a child was symptomatic of a latent problem, often kidney disease. However, he related that it is now felt that children may be more affected or "predisposed" than once realized. He stressed the need for identification and treatment of hypertension as soon as possible to minimize the sequelae that often result in later life. The Task Force on Blood Pressure Control in Children suggested that schools would be settings in which to do blood pressure screening in children. Weidman noted that any such program would require the joint efforts of school personnel, medical personnel, and parents. Procedures would have to be developed for referral of children with blood pressure readings above pre-established criteria points. It was mentioned that it would also be helpful to instruct all involved not to "label" the child should he/she have an abnormal reading. Psychological problems could result.

Chameides, Leon, "Congenital Heart Disease-Its Effect on the School Age Child," The Journal of School Health, 49:205-209, April, 1979.

Two types of heart problems were discussed. The first was a functional murmur which had been described as no more than a "noise" the heart makes as it pumps blood. The second type of problem was congenital heart disease. That referred to a problem which resulted from improper development of some part of the heart. Approximately eight children per 1000 have been said to be affected, two of whom will be affected seriously. The psychological aspect of dealing with an affected child was stressed. The child must not be overprotected nor ostracized; he/she should have goals set for him/her. Those dealing with an affected child should be realistic, however. Vocational counseling was stressed as being important. Chameides discussed many of the common types of congenital heart disease in relatively understandable terms, emphasizing some of the symptoms the affected child might exhibit. The most common defect was the ventricular septal defect. He pointed out that those children may fatigue easily, but often are permitted to take gym classes; however, the child should be able to rest when he/she feels it is necessary. Occasionally, pulmonary blood vessel disease could occur with severe ventricular septal defects. Those children may become easily fatigued and short of breath with activity. It was stated that it may be necessary for them to not have to climb stairs. Children with severe aortic valve stenosis may have restrictions placed on their activities. The teacher should relay any signs of chest pain or shortness of breath to the proper medical authorities. Chameides also noted that close communication between the members of the medical and educational teams has been said to be essential in dealing with children who have congenital heart problems.

Crittenden, I. Hunter,"'Risk Factors' in Coronary Heart Disease," The Journal of School Health, 49:210-212, April, 1979.

Crittenden was extremely concerned with the high incidence of coronary disease. He noted that the incidence was much higher in countries such as the United States and tried to define some factors which may contribute to that. He noted that atherosclerosis appeared to play a significant role in heart disease. He pointed to the fact that evidence is appearing which suggests that some of the problems begin early in childhood and progress through stages, culminating in clinical manifestations. Although much has not been learned about atherosclerosis, the relationship between diet and the disease was mentioned. It was noted that in some cultures there was less of a problems because the general diet consisted of less"saturated fat and cholesterol."(p.210) Crittenden identified other "risk factors" such as smoking, hypertension and obesity. It was stressed that more healthy dietary habits should be instituted, beginning with young children. The importance of exercise should also be inculcated into the young, although he mentioned that there was only circumstantial evidence that exercise would counteract atherosclerosis.

Sailors, Emma Lou, "Project'Hypertension Alert'," The Journal of School Health, 53:374-376, August, 1983.

Sailors pointed out that two out of every one hundred children in the 12-18 age group may be affected by hypertension. State funding enabled the Yonkers New York schools to take part in a blood pressure project designed to promote student awareness of blood pressure and to identify children who may have an undiagnosed problem. 5399 third, seventh and tenth graders were screened as part of the study. Pressure readings 130/85 mm Hg necessitated repeat readings. If the pressure was that reading or above on the subsequent readings, the child's parents were notified. Then the child was sent for medical consultation. The study discovered elevated readings in 93 of the high school students, 65 of the seventh-graders and 29 of the third graders. Thirty-six students were sent for medical evaluation. Sailors found the project accomplished both goals that had been set.

VISION PROBLEMS

Spohn, Christine, "Detecting Vision Problems," Instructor, 90:94-95, May, 1981.

The American Optometric Association has surmised"'...four out of ten grade-school children are visually handicapped for adequate school achievement.'"(p.94) Unfortunately, some of those children have been erroneously classified as having learning problems. There are four basic vision requirements according to Spohn: "near vision, distance vision, binocular efficiency, and field of vision."(p.94) The teacher should be aware of some behaviors which may indicate a problem. A student may frequently get his/her assignments from another because he/she could not read the board. Or, perhaps, the child may have problems with "close work and reading tasks."(p.94) These types of problems are classified as physical vision problems and usually are not detected by routine eye screening done in the schools. Functional vision problems are more apt to be uncovered only by a thorough eye examination(which is not the type provided by the schools). Functional problems may included "inability of the eyes to work as a team, lack of depth perception, poor eye tracking, and inadequate fixation,"(p.95) The teacher should contact parents if he/she notices an unusual appearance to the eyes, if the student verbalizes about his vision, or if the student manifests behavioral changes which could be suggestive of poor vision.

Davis, Patricia Anne, "Teaching Partially Sighted Children," Teacher, 98:39-41, March, 1981.

Eighteen possible symptoms of visual problems were ennumerated by Davis. Suggestions were made for the teacher who has children with visual problems in her/his class. The success of the child with visual problems in school was said to fall mainly on the shoulders of the teacher. Davis suggested that the teacher should set high, but realistic expectations of the affected child, make the physical environment of the classroom accommodating, and have a supportive and accepting attitude. Davis also mentioned that the child may need to sit near the board. Some children were said to require books with large print. Davis pointed out that the use of mimeographed material is difficult for the visually-impaired child to see due to the purple ink. Some adjustments in the art and gym programs of affected children were also mentioned as possibly being necessary. Albinism and Achromatopsia were two disorders named which might necessitate the wearing of sunglasses due to a sensitivity to bright light. Davis also listed many other practical adjustments the teacher can make in her teaching strategies to assist the child with vision problems. She noted that "generally special education is available only for those children whose best corrected vision is 20/70 or lower." (p.41).

HEARING PROBLEMS

Mollick, Lawrence B., and Etra, Kenneth S., "Poor Learning Ability ... Or Poor Hearing?" Teacher, 42-43, March, 1981.

Mollick and Etra pointed out that it has been estimated that five hundred thousand children "between the ages of six and 12 suffer from hearing loss to some degree."(p.42) Kunze and Holmes(1969) found hearing problems to be related to slower language development. Peckham, Sheridan, and Butler in a 1972 study of British children found "those with hearing loss were not only poorer in reading ability, but also 'more clumsy' and 'less stable' than other children."(p.42) Because hearing impairment is not always identified, Mollick and Etra pointed out that the child may falter as he reaches the "concrete operations period." (p.42) Teachers were urged to observe for possible clues of hearing problems. Mollick and Etra mentioned that speech problems might be associated with a hearing problem. They also pointed out that a child with allergies or a cold might have difficulty hearing well. They recommended notification of parents should the teacher suspect a hearing problem. It was pointed out that many times treatment of an underlying problem will correct the hearing deficit. It was also stressed that the child in the classroom should be made to feel accepted and should not be overprotected. However, he/she should be seated close to the teacher. Mollick and Etra also suggested that the teacher should enunciate clearly and face the class whenever talking.

Brandes, Pauline J., and Ehlinger, Dianne M., "The Effects of Early Middle Ear Pathology on Auditory Perceptions and Academic Achievement," Journal of Speech and Hearing Disorders, August, 1981.

A study was done in British Columbia. The subjects consisted of 15 elementary students who had experienced conductive hearing loss(CL) and a control group of 15 elementary students. The purpose was to determine if the presence of middle ear disease in early childhood had a relationship to "auditory perceptual skills and achievement."(p.302) Using a variety of standardized tests, it was determined that the CL group did not perform as well as the control group, especially on tests requiring basically auditory tasks. The CL group performed better on tasks in which visual skills were required in addition to auditory skills. It was also shown that the CL and control groups "did not differ significantly on measures of visual perception and non-verbal intelligence."(p.305) It was mentioned that the roles of the environment, intelligence, and special services for the CL group provided by the school may have influenced the outcome.

Cass, Richard, and Kaplan, Phyllis, "Middle Ear Disease and Learning Problems: A School System's Approach to Early Detection," The Journal of School Health, 49:557-560, December, 1979.

Criticism was levied against the "pure-tone screening" method used by the schools to detect hearing problems. Specifically, it was felt that middle ear problems were not identified because the resultant hearing loss may be below the 20-25 decibel level, which is the lowest level detected by the pure-tone method. Dr. Richard Winchester felt that "atleast 90% of the hearing problems met in a school-age population are related to minor, non-painful, non-draining cases of otitis media causing a 15-20 decibel hearing loss."(p.557) The effect of that type of problem on reading can be substantial mentioned Cass and Kaplan. That was because of the importance of auditory skills to language development and reading skills. Unfortunately, the highest percentages of those cases were said to occur early in life when the child's prerequisite skills for readiness to read were developing. The Millis School District in Massachusetts found that using a combination of the pure-tone screening method and impedance measurement was a more accurate way to determine the presence of hearing impairments. Twelve cases were found that would not have been had impedance measurement not been used.

Kennedy, Patricia, and Bruininks, Robert J., "Social Status of Hearing Impaired Children in Regular Classrooms," Exceptional Children, 40:336-341, February, 1974.

Various studies over the years had been done for the purpose of ascertaining whether children with handicapping conditions were accepted by their peers. Peer rating scales were often the tool used. It appeared that children with handicapping conditions were often less accepted than children free of such problems. Force(1966) found that hearing-impaired children "were chosen less often as playmates than all other handicapped children except those with cerebral palsy."(p.337) He felt that children reject increasingly more if the disabling characteristics are detectable. Contrary to that conclusion, a study by Shears and Jensema(1969) "concluded that a visible handicap(e.g. hearing aid) might actually reduce awkwardness between disabled and normal peers, since the need to explain the handicap would be minimized."(p.337) Kennedy and Bruininks did a study in Minneapolis to determine the social acceptability of hearing-impaired children in the primary grades. The Moreno peer rating scales, the forced choice peer ratings and Socioempathy tests were given to the affected children and their classmates. The findings led to the conclusion that the affected children had higher social status than had been demonstrated in earlier investigations.

EPILEPSY

Matthews, Wendy S; Barabas, Gabor; and Ferrari, Michael, "Achievement and Social Behavior Among Children With Epilepsy," Psychology in the Schools, 20:10-12, January, 1983.

The incidence of epilepsy in the child population was said to be one per 320. Of those "15-30% may also have learning disabilities," (p.10) Barabas et al. felt three factors could be responsible for learning disabilites in those particular children. One could result from the physiologic problem causing the epilepsy, such as "the site of epileptic activity, severity and age of onset."(p.10) The second contributing factor mentioned was the possibility that the medication was affecting learning. The final possibility they mentioned was that the problem could result from lack of acceptance by one's contemporaries. A study was done to assess school performance of 15 epileptic children, and two control groups, one with 15 diabetic children, and one with 15 healthy children. The results showed that the epileptic children had poor feelings about themselves compared to the control groups. The epileptic children also indicated that they felt they had little control over their performance. The epileptic children also had a tendency not to be ethusiastic about the educational setting. Barabas et al. suggested that efforts to enhance self-concepts of those children might prove beneficial toward improving school performance.

Gliebe, Werner A., "Involuntary Deviance: Schooling and Epileptic Children," The Journal of School Health, 49:88-89, 92, February, 1979.

Epilepsy was said to affect somewhere between 1/200 and 1/50 of the American people. Gliebe pointed out that a great deal of stigma has been associated with epileptics, and that, unfortunately, some of that attitude lingers. Gliebe pointed out that in the last quarter century the "more than 2.5 million persons still believe epilepsy is a form of insanity."(p.89) Gliebe described the two general categories of epilepsy. He mentioned that the most common type is idiopathic which means that a causal factor cannot be identified, and he mentioned that about 75 percent of all cases are of that nature. Gliebe related that children have been more often afflicted with that type. He referred to the other broad category as symptomatic which meant that the seizures resulted from underlying, definable causes, such as "high fever, infection, sudden lack of oxygen or brain tumors, among other causes." (p.88) The use of anticonvulsant drugs was said to control seizures in over 90 percent of the children classified as epileptics. He cited a study in which teacher expectation of scholastic performance of epileptic children indicated that a high percentage expected performance to be atypical. Gliebe pointed out that "among those cases whose illnesses are medically controlled, there is no evidence to support grade inferiority due to social stigmatic responses to such involuntary deviance." (p.89) A majority of the teachers in the study felt they were unprepared to teach children with epilepsy. Gliebe stated teachers must be informed about epilepsy and be taught what to do in case a child has a seizure. If a seizure would occur, he stressed the teacher should remember that his/her reactions will serve as a role model for the other students. Gliebe felt that educators should promote accepting attitudes to prevent social stigma which would cause psychological problems for the affected child.

Anspaugh, David J.; Gilliland, Marilyn; and Anspaugh, Susan J., "The Student with Epilepsy," Today's Education, 69:34GF-38GE, September/October, 1980.

Although there are several types of seizures, there are three basic groups. Absence seizures consist of short lapses of consciousness, but generally no muscular involvement. The basic teacher responsibility is to make sure the child receives directions for assignments. Generalized tonic-clonic seizures are more severe. During that type of seizure there is a loss of consciousness and generalized muscular involvement. Basic teacher responsibilities include:" 1. help the affected student into a lying position and put something soft and flat under the head 2. remove glasses and loosen any clothing around the neck 3. do not try to restrain the student 4. turn the student on his side to allow saliva to drain from the mouth and to help keep the airway open 5. make arrangements for a cleanup and a change of clothing for the youngster who loses bowel or bladder control."(p.37GE) The third type of seizure is called a partial seizure which can be either simple or complex. In a simple seizure only a small area of the body is affected by involuntary movement. Complex seizures do not usually appear under the age of twelve. "Characteristic activity may include movements such as lip-smacking, chewing, mumbling, absent-minded pulling at one's clothing or fiddling with a small object." (p.36GE)

DIABETES

Wisdom, Ruth, "Health Beat: What Teachers Should Know About Hypoglycemia and Childhood Diabetes," School and Community, 68:29, March, 1982.

Hypoglycemia was referred to as low blood sugar. Wisdom pointed out that it rarely has appeared in children. However, diabetes was said to be more common and resulted from problems with insulin production which disrupts sugar metabolism. Problems also were mentioned that could develop with fat and protein metabolism as part of the diabetic disease process. The teacher was advised to keep some food items with high-sugar content nearby, should the child develop an insulin reaction. (Most childhood diabetics are given insulin as part of their management programs.) Basically, the diabetic child "should act and be treated like any other child in your class." (p.29)

Wentworth, Sam, "The Student with Diabetes," Today's Education, 70:42GS-44GS, February/March, 1981.

With close to one million children in the United States being afflicted with diabetes, Wentworth pointed out that that disease is the most predominant endocrine disease one would find in his/her classroom. He explained that diabetes is basically a problem in the metabolism of glucose, occuring when an insufficient amount of insulin is released to facilitate that metabolism. The teacher should be aware of the three basic early warning symptoms in an undiagnosed child: "frequent urination, excessive thirst or hunger, sudden weight loss."(p.42GS) Most diabetic children are insulin dependent. Although they usually will not receive the insulin in school, one should be aware that the blood sugar level will be changing and is especially influenced by diet and exercise. It is desirable that exercise be conducted immediately after eating so that there is enough sugar in the blood to keep the child from going into an insulin reaction. Signs of such a reaction are:"paleness, glassy-eyed stare, a sudden change in behavior, such as weeping or irritability, confusion, behavior resembling drunkeness, shakiness, and/or sleepiness."(p.43GS) If such a reactions does occur, the student should be given something with high sugar content immediately. Another set of symptoms could develop if the blood does not contain enough insulin. Those symptoms are: "frequent urination, thirst, hunger, nausea, vomiting, abdominal pain, fatigue, and irritability."(p.44GS) Those should be reported to the nurse and the parents.

ALLERGY

Rapaport, Howard G., and Flint, Shirley H., "Is There A Relationship Between Allergy and Learning Disorders?" The Journal of School Health, 46:139-141, March, 1976.

Rapaport and Flint addressed the possible implications of allergic disorders with relation to learning disabilites. An "Allergy Index" was presented which identified many types of allergic disorders. Specific examples were cited in which an allergic reaction manifested itself in such a way as to interfer with learning. Rapaport and Flint felt educators should be aware of the possible relationship of allergy and learning disability and make appropriate consultations when he/she suspects a problem.

Baker, Barbara M., and Baker, Claude D., "Difficulties Generated by Allergies," The Journal of School Health , 50:583-585, December, 1980.

Baker and Baker felt that children with chronic allergic problems may often demonstrate learning disability traits. Auditory and vocal systems were noted to be affected by allergic disorders. Baker and Baker studied "the relationship of allergies to hearing loss, vocal quality and articulation disorders in young children."(p.584) They found generally that "allergic rhinitis was associated with both hearing loss and articulation error" and"vocal quality disorders...were often found in association with bronchial asthma."(p.584) Baker and Baker concluded that allergic disorders and concomitant hearing deficits must be considered when evaluating a child's language development skills.

Glines, Don, and McGovern, Joseph, "Hidden Allergies Hamper Students and Staff," Educational Leadership, 40:59-63, March, 1983.

McGovern and Glines stated that only a quarter of the school population is not affected by allergic problems of some variety. Several sources were cited as causal factors. Although they related the fact that "natural inhalants" have been one of the primary sources, they felt the overall problem resulted from "the increasingly synthetic environment." (p.60) A myriad of physical and mental disorders were named as possibly being related to allergic reactions; however, they conceded that "tumors, stress and infection" had to be ruled out before positively relating certain diseases to allergic reactions.(p.60) They were especially concerned about the possible link between hyperactivity and chemicals in many common foods. They also were concerned that physical aspects of the school building itself could promote hyperactivity due to the presence of hydrocarbons and poor ventilation. They felt educators have an obligation to analyze and then correct factors within their domain which contribute to allergic problems.

ASTHMA

Schneider, Michael R.; Melton, Beth M.; and Reisch, Joan S., "Effects of a Progressive Exercise Program on Absenteeism Among School Children with Asthma," The Journal of School Health, 50:92-95, February, 1980.

It was estimated that as many as 2 million children have had an asthmatic problem; the incidence was noted as being higher in boys. It has caused "more absenteeism than any other chronic disease" by one account.(p.92) A study was done to examine the impact of a special exercise program for a group of asthmatic children. Absenteeism and "severity of attacks" were the criteria used to judge the relative success of the program.(p.92) The experimental group had 100 elementary children the first year(1976-77) and 99 children in the second year(1977-1978); whereas the control group had 86 the first year and 74 the second. The control group children were also asthmatic but were not provided with the exercise regimen. The findings were statistically significant for the experimental group in the first year for both criteria; however, although the results also favored the experimental gorup the second year, they "were not statistically significant."(p.95)

Freudenberg, Nicholas, et al., "The Impact of Bronchial Asthma on School Attendance and Performance." The Journal of School Health, 50:522-526, November, 1980.

The first part of a three-phase, four-year investigation called the Asthma Self-Management Project consisted of interviews with the families of 200 asthmatic children in the vicinity of New York City. It was estimated than an average of 30 days per year were missed due to asthma. In addition to the absenteeism problem, the interviews yielded the fact that some parents also noted reading problems in their children. The interviews suggested school personnel are not adequately prepared to deal with asthmatic children's individual needs. It was also determined that adequate lines of communication between the parents and teachers were often not maintained. Due to inaccurate information, the asthmatic children were often subjected to unnecessary restrictions in gym classes. Freudenberg et al. suggested that school personnel be instructed not only in the management of asthmatic children, but also in the management of various other chronic health problems. It was also suggested that it would be beneficial to educate healthy children about health problems in an effort to facilitate peer acceptance.

Parcel, Guy S., and Nader, Philip R., "Evaluation of a Pilot School Health Education Program for Asthmatic Children," The Journal of School Health, 47:453-456, October, 1977.

Asthma has been said to be the most prevalent chronic health problem in children attending school. A pilot program was developed whereby a multidisciplinary approach was taken to educate asthmatic children about their problem. It was also hoped that asthmatic children would develop better self-concepts and would "assume greater responsibility and involvement in the management of their asthma."(p.453) No control group was used. The only significant positive effect of the education program was that the children tended to internalize "their perceived source of reinforcement of health behavior."(p.454) However, absenteeism and the numbers of acute emergency attacks were not significantly different from one year to the next. "Illness anxiety" and "self-concept" did not differ significantly.(p.454)

WEIGHT PROBLEMS

Humphrey, Patricia, "Height/Weight Disproportion in Elementary School Children," The Journal of School Health, 49:25-29, January, 1979.

Approximately as many as three out of every ten children was said to be overweight. Humphrey felt that the educational environment was the appropriate place for introducing the behavior changes required for weight alteration. A study was done in 1976 on 1953 children in a southern school district. The purpose was to determine the height and weight of each child and then determine if the readings were within normal ranges for the child's age group. "The normative values used to define weight regardless of age were derived from the growth charts developed by the National Center for Health Statistics, 1976."(p.26) The study showed that "approximately 40% of the children had height/weight disproportion...with 26.8% weighing more than normal for their height." (p.26) There was a higher number of females which fell into that category. A study by Abraham, Nordsieck and Collins was cited for its conclusion that most overweight children have the same problem in adulthood. Obesity increases the "risk of certain pathological conditions such as depressed growth hormone release, hyperinsulinemia, carbohydrate intolerance, and elevated blood pressure."(p.28) Humphrey felt that the schools could make an important contribution to health by setting up "physical exercise groups, self-help groups, and behavior modification techniques...to evaluate the feasibility and effectiveness" of using the school as a place to help children who are overweight.

Coates, Thomas J., and Thoresen, Carl E., "Treating Obesity in Children and Adolescents: A Review," American Journal of Public Health, 68:143-149, February, 1978.

The Ten State Nutritional Survey(1972) yielded "the following percentages of obesity among 12 and 13 year olds: white males, 17%; black males, 9%; white females, 12%; black females, 11%." (p.143) Coates and Thoresen mentioned numerous sequelae, both physical and mental, which could result from obesity. The obese child was said to possibly suffer from a poor self-image. They mentioned that interpersonal relationships were often affected due to the child's weight problem. They felt that it was best to attack the problem of obesity as soon as possible, citing their convictions that it is easier to promote proper eating habits than trying to alter bad habits as the child gets older. Coates and Thoresen reviewed studies done on various treatment modalities. They noted "in the few studies reporting individual data, the results suggest that clinically significant changes for obese children are rare. Follow-up data, although seldom available, show consistently that subjects fail to continue losing weight or even maintain weight loses experienced during treatment."(p.144)

NUTRITIONAL PROBLEMS

Frankle, Reva, "It's Never Too Early for Nutrition Education," The Journal of School Health, 50:387-391, September, 1980.

Frankle stressed the goal of incorporating more nutrition education into the school curriculum. Some of the impetus came from the appropriation of funds in the 1977 "National School Lunch Act and Child Nutrition Amendment."(p.387) Weight Watchers International developed a program called the "Garden of Eating." Its emphasis was primarily preventative, promoting good habits as opposed to the more difficult task of correcting bad ones. In 1979 a pilot program was done utilizing the Weight Watchers' kit. The three basic objectives formulated were: "1. to help each student begin to understand the relationship of food to his or her own body 2. to help each child develop a sense of excitement and adventure in learning about food 3. to help each child begin to develop personal responsibility for food selection and to understand the probable consequences of his or her food choices."(p.388) Teachers and parents were asked to evaluate the programs. 85 teachers with the the responses "very good" or "good" received for all parts of the kit. 1032 parent questionaires were evaluated. "Parents in this study candidly stated,'We just don't know what good nutrition is and hope to learn as a result of this classroom program.'"(p.390) Frankle commented that young children seem more receptive to ideas which may cause some change in behavior, and therefore, felt that nutrition education should be presented in an organized manner by the schools.

Stronck, David R., "Blame Diet for Learning Problems," The American Biology Teacher, 42:306-307, 324, May, 1980.

A 1968 report, Hunger USA, revealed that "six million school-age children were suffering from malnutrition."(p.306) Government programs have helped alleviate some of the problems. Stronck saw a second problem in that many people were opting for non-nutritious foods even when they had the money to get food. He was critical of food additives and refining processes. A 1977 study by Williams was cited to relate that inadequate nutrition could have a deleterious effect on personality. Seventeen girls had behavior changes from aggressive to "well adjusted" after nutritious foods were substituted in their diets in the place of food high in sugar and white flour content. Feingold's (1973) success with 3/5 of a group of 25 hyperactive children treated by diet modification was also mentioned. The diet stressed two types of foods which should be avoided: 1. "all foods that contain synthetic (artificial) colors and synthetic (artificial) flavors, and the two antioxidant preservatives-butylated hydroxytoluene and butylated hydroxyanisole; 2. those fruits and vegetables that contain natureal salicylates, including apples, all types of berries, grapes, oranges, tomatoes, and others."(p.307) Stronck also mentioned other studies examining the relationship between food and behavior. He advised school personnel to be aware of the possibility that a "learning problem" may be linked to a nutrition problem.(p.307)

Clark, Rose Marie, "Nutrition and Learning," The Clearing House, 55:300-304, March, 1982.

Clark described the dietary treatment of a dyslexic boy who displayed poor academic performance in several subject areas. Under the direction of Dr. Hugh Powers, a restricted carbohydrate program was instituted. "Vitamin supplements and high quality protein for meals and snacks" were also part of the regimen.(p.300) The boy's symptoms gradually improved and within two years "he was doing well academically." (p.300) Clark also mentioned a study by Churchill and Caldwell(1967) which found that protein deprivation in pregnant rats seemed to be related to learning problems in their offspring. Dr. Charles Upton Lowe asserted that adequate nutrition is vitally "important from the beginning of life to assume proper brain 'growth and development'." (p.301) A 1980 U.S.D.A. Food Consumption Survey revealed that children between the ages of three and eight failed to meet the recommended daily allowances of "seven essential nutrients."(p.302) Because cognitive development has been said to be related to adequate brain development, proper nutrition was said to be vital during the first four years of life. Clark pointed out that the brain grows and develops to "90% of its adult weight" during that time.(p.304) Clark also stated that malnutrition is not unique to the poor. Diets high in "refined carbohydrates" are common in upper classes and cause fluctuation in blood sugar levels which,subsequently, affects the brain and learning.

Ballentine, Rudolph M., "The American Diet and the Health of Our Youth," Elementary School Guidance and Counseling, 14:149-155, December, 1979.

The basic source of protein in the American diet, once grains and beans, has shifted in the last sixty years toward meat. The grains contained carbohydrate, but the meat contains "as much as 40% of its calories in fat."(p.150) There has also been a large increase in the use of vegetable oils. Ballentine(1978) felt that the increased comsumption of fats and oils may heighten one's risk of getting cancer. During the same time frame the consumption of "complex cargohydrates(starch) has been supplanted with "simple carbohydrates"(sugar) which seldom have nutrients. Price(1972) studied various groups of people around the world and evaluated their diets. Those who consumed the "modern diet" had more tooth decay, more degenerative diseases, tuberculosis, and more "social and emotional problems."(p.153) There has seemed to be concern over the amount of additives in foods consumed today. Some felt that they may contribute to hyperactivity. "Grains, fruits, and vegetables" were mentioned as foods which seem to facilitate the elimination of the additives from the body, whereas "fats, oils, meat, and sugar" seem to lack that property, promoting retention within the body.

Pertz, Doris L., and Putnam, Lillian R., "An Examination of the Relationship Between Nutrition and Learning," The Reading Teacher, 35:702-705, March, 1982.

Nutrition has been said to affect learning both directly and indirectly. Indirect referred to that which resulted from the use of food as an energy source. Numerous studies were mentioned which examined aspects of that relationship. Latham and Cabas (1971) found that "in early life, caloric deficits lead to a reduction of activity, less play with peers, less verbalizing and less sensory stimulation." (p.702) The body's disease defense mechanisms were said to be weakened by improper diets, causing illness and absenteeism. A 1953 study by Eames demonstrated that "one third of the subjects showed a low hemoglobin level; and he inferred that iron deficiency anemia may contribute to reading disability."(p.703) Food allergies, body responses to food additives and caffeine and sugar also were mentioned as possibly having an effect on learning. Pertz and Putnam referred to a direct relationship as "that in which the development of the central nervous system is affected by diet."(p.702) They also cited several studies which had examined aspects of that relationship. One example was a study by Freeman et al (1977) which evaluated 1000 Guatemalan children who had been given protein supplements. The results showed "significant difference in children's cognitive composition score (memory, recognition, perception, inference, and verbalization)."(p.703) Pertz and Putnam advised teachers to be informed, to be role models, to be able to detect and refer allergy problems, and to encourage the removal of candy and pop machines from the school premises.

Charlton-Seifert, Joan; Stratton, Beverly D.; and Williams, Maurice G., "Sweet and Slow: Diet Can Affect Learning," Academic Therapy, 16:211-216, November, 1980.

Protein and vitamins were mentioned as being necessary for brain health. Concern had recently developed over what has been considered an excess amount of sugar in the diet and its potential for causing hyperactivity. People only seemed to notice obvious sources of sugar, unaware that many items contain sugar under a different name. Clients at the Akron University Reading Clinic often hadproblems with concentration which improved when the children were no longer permitted to eat foods with high sugar content. It was suggested that teachers begin promoting good nutritional habits as early as kindergarten. It was also suggested that teacher education progrms also incorporate nutrition education and stress the relationship between nutrition and learning. The article also questioned the use of candy as a positive reinforcement tool.

MISCELLANEOUS RESOURCES

Bleck, Euguene E. and Nagel, Donald A., Physically Handicapped Children-A Medical Atlas for Teachers, New York: Grune & Stratton, Inc., 1975.

Citing the lack of medically-related data aviable for use by people outside the medical fields, Bleck and Nagel have compiled an informative collection of discussions concerning many common health problems found in school children. The book was designed to present relevant data concerning various conditions from physiologic, educational, and psychosocial viewpoints. A variety of illustrative material was included in relatively simple form so that it could be understood by nonmedical personnel. Although not all childhood health problems were included, many of the most common were presented. The book presented a valuable resource for the teacher who has a student with one of those health problems in his/her classroom.

Blake, Florence G.: Wright, F. Howell; and Waechter, Eugenia H., Nursing Care of Children, Philadelphia: J.P. Lippincott Co., 1970.

Although the book was basically directed toward the nurse and her/his treatment of various pediatric health problems, a discussion was included on the various levels of psychosocial and cognitive development in children. That information was using for making comparisons between the psychological manifestations of chronic health problems and typical psychosocial behavior of the healthy child.

SUMMARY

Although each of the chronic health problems mentioned in this paper presented individual considerations with respect to school performance, as well as physical ramifications, several collective needs were identified. The "emotional freedom" mentioned by Blake et al. was certainly weakened by chronic health problems. According to Isaacs and McElroy,the affected child has been burdened with many emotional conflicts, ranging from misconceptions concerning the causal factors of the disease, to diminished self-esteem due to altered self-perception as a result of having a health problem. Isaacs and McElroy pointed out that the child with a chronic health problem may have irregular school attendance patterns, putting further strain on his/her relationships with his/her peer group. Furthermore, according to Isaacs and McElroy, the relative importance of scholastic achievement increased due to medical restrictions imposing limitations in other activities. Isaacs and McElroy also pointed out that due to conceptual misunderstanding about the specifics involved with a given health problem, the peers of the afflicted child may ostracize him/her.

In addition to the psychological strain placed on the child with a chronic health problem, Isaacs and McElroy related that tremendous burdens were placed on the families also. Guilt, denial, and financial strain as the result of expensive medical treatment were cited as typical problems. In addition, other children in the families often perceived a shift in their positions within the family structure, causing resentment and decreased "school performance."(Isaacs and McElroy: 319-320)

Much of the literature reviewed suggested that the teacher also

was vulnerable to psychological conflict, due to the presence of a child with a chronic health problem in the classroom. Nader and Mahan stated that lack of experience or understanding of the ramifications of given illnesses could interfere with the teacher's perception of his/her total control over classroom occurences. Isaacs and McElroy pointed out that the teacher is often apprehensive about having a child with a chronic health problem in class. Fear of a medical emergency was stated as one reaction. Some teachers were found to overprotect the afflicted child, which as Isaacs and McElroy pointed out, created an atypical and strained classroom environment. They also found that often the teacher had no one with whom to discuss his/her anxieties and concerns.

Legal ramifications on the part of the schools have not been clearly specified according to Ekstrand. He related that some of the cases of specific treatment that must be done during school hours had been decided by the judicial system. The discrepancy between "related services" and "medical services for diagnostic and evaluation purposes only" as stated in PL 94-142 seemed to be part of the controversy.(Ekstrand:3) The administration of medication to students had also been mentioned as another area with legal implications. Kinnison and Nimmer speculated that the schools may find themselves in a position to undertake that responsibility as a result of PL 94-142. However, a study conducted by Kinnison and Nimmer found that the majority of the districts participating had no formal guidelines as to medication administration and storage.

The use of medication not only was found to have legal implications, but also implications for learning. Palermo and Palermo stressed the need for the teacher to be cognizant not only of the ramifications of the

child's health problems on performance, but also of the effects medication may have on the child's behavior. They suggested that it was important for the teacher to know what medication a child is taking as well as normal and unusual effects of the drug. Without that knowledge, Palermo and Palermo felt the teacher may be inflexible, causing embarrassment and additional adjustment problems in the child.

Many chronic health problems mentioned had medication prescribed as part of the medical treatment. Specifically mentioned were diabetes, cancer, asthma, and hyperactivity. Particularly important was the case of the insulin-dependent diabetic child. Wentworth identified symptoms of insulin shock, relating that occurence is usually near mealtime or "during or after exercise."(Wentworth: 43GS) He suggested that physical education classes be arranged after lunch time because the body will have a high enough blood sugar level to accommodate the burning of calories that occurs during exercise.

The child with cancer was also identified as usually receiving medication(chemotherapy) as part of his/her treatment. Zwartjes et al. identified numerous side effects of chemotherapy, with the most observable being loss of hair. The self-image of the affected child was said to be vulnerable to distortion. Helping the child feel accepted in the classroom was a major responsibility of the teacher according to Zwartjes et al. Other side effects of chemotherapy, as well as the psychological ramifications of the disease, had an effect on school adjustment according to Zwartjes et al. They felt that the child who would readjust the best to the school setting was the one with a positive school record prior to illness, the one with the fewest

physical alterations, and the one with the most positive outlook.

In most cases discussed,the use of medication as part of a treatment regimen seemed to be a secondary consideration of the topic being discussed. However, in the case of literature concerning the hyperactive child, the major points seemed to be whether the use of stimulant medications was appropriate and whether it could be justified, or if classroom alternatives were preferrable. There seemed to be widespread diversity of opinion not only about treatment of hyperactivity, but also as to what the syndrome of hyperactivity really entailed. Allyon et al. defined it synonymously with hyperkinesis by referring to the description provided by Stewart et al.(1966) with classroom manifestations of "excessive movement. unpredicatable behavior, unawareness of consequences, inability to focus on and concentrate on a particular task and poor academic performamce." (Allyon et al:137) Braun preferred the use of the descriptor "Attention Deficit Syndrome" to hyperactivity. Kalechstein et al. noted that minimal brain dysfunction had also been used to describe the group of symptoms similar to those just mentioned. They felt there was a potential danger of classifying a child on the basis of behavior rather than underlying cause. Furthermore, they estimated that as many as 500,000 children were taking medication to control hyperactivity in 1973, an increase of 300,000 in just three years.

Kalechstein et al. concluded from a study done to analyze the viewpoints of pediatricians and graduate students in special education concerning certain aspects of hyperactivity that pediatricians preferred the use of medication as treatment for hyperactivity, whereas the graduate students preferred special education classes and perceptual motor exercises.

Robin and Bosco concluded from their study that a very high percentage of teachers not only felt they could identify hyperactivity, but also felt they knew what Ritalin was and the reasons why it was used. However, teacher recognition of the individual properties of that drug commonly used to treat hyperactivity, was considerably lower. The study group was "cautiously favorable" toward the use of Ritalin, in spite of the fact that only a small percentage was consulted by medical personnel for assistance in evaluation of the drug's effectiveness.(Robin and Bosco:628)

Allyon et al. cited several studies which investigated the effects of psychostimulants upon various skills pertinent to reading, but found that a dearth of research on final academic outcomes. Using a token-economy behavioral technique, they found that the academic performance of three students increased significantly over the performance of the students measured while they were on medication. However, Braun felt that behavior modification had not been effective with children with hyperactivity. He felt that academic performance had improved with the use of psychostimulants, citing dramatically improved reading scores. However, documentation was not available for that conclusion.

Although many of the chronic health problems presented in this paper would be classified as "other health impaired" according to Abeson and Zettel or Ekstrand, most were mild or moderate conditions not generally requiring special education. One exception was the terminally ill child who could require individual planning for hospital instruction or homebound classes. In the final stages of the disease, that child may only attend school a short while each day according to Ainsa.

Vision and hearing problems were also specifically mentioned in PL 94-142 according to Abeson and Zettel; however, those described in this paper were mild to moderate which usually could be handled with classroom modifications.

Isaacs and McElroy estimated that between 3.3 and 4.8 million children have been affected with a chronic health problem. Although the affected child was usually a member of a regular classroom, it was apparent that each disease or health problem presented special considerations for school personnel.

Inman and Corrigan related that for the hemophiliac child absenteeism could be a problem, perhaps necessitating tutoring. They also noted that while hemophiliacs have academic potential, they often fail to meet that potential. Bleeding episodes presented the most acute problem of the hemophiliac, and Corrigan and Inman stressed the need for prompt action should injury occur to the child.

Much of the literature concerning children with cancer indicated the increasing likelihood that an afflicted child would return to school. Sachs, Kirten and Liverman, Zwartjes et al. all identified several problematic situations the child with cancer would find in the school environment. Sachs pointed out sequelae of chemotherapy and irradiation which could lead to physical change and psychological stress. Kirten and Liverman felt education was such an important component of a child's life that it should be continued in a hospital or home situation should the child not be able to attend school. Zwartjes et al. and Greene were especially concerned with the lack of preparation of teachers for dealing with a terminally ill child. They stressed the need for careful

analysis of one's attitudes and feelings toward illness and death and recognized a need for outside consultation for help with those considerations. It was also mentioned that misconceptions and myth concerning the disease itself may exist instead of factual knowledge. Cyphert stressed the need for the teacher to acquire factual knowledge in order to overcome her/his own anxieties and also to prepare the other students in the classroom. Ainsa discussed many techniques, such as role playing and the use of the Magic Circle,for helping students vent their anxieties and feelings concerning a classmate's disease. Anisa also related the fact that the teacher is often called upon by the afflicted child to discuss that child's concerns. She felt that the child turned to the teacher because of a reticence to discuss certain problems with the parents. Liverman and Kirten stressed the need for individualization of the needs of children with cancer because the disease may cause changes in needs over time.

Fredlund related that cancer as well as other severe chronic diseases could result in the death of a student. She stressed the fact that the other classmates will have concerns which must be addressed. In dealing with death, Fredlund related that one must be aware that a child's concept of death varies with age. Grollman felt it was a great mistake to avoid the issue of death. He elaborated on specific types of reactions children were apt to exhibit. He mentioned that useful curricular materials were available for use with various age groups. In dealing with the topic of death, Grollman also suggested that teachers not convey the attitude that they know all the answers about death.

The only large empirical study analyzing the school performance of

children affected with various health problems was conducted by Guerin. Of 8209 students participating in a study of teachers' assessments of school performance by children with mild or moderate health problems, 568 were found to have one or more health problems. Guerin found that children with coordination problems rated poorly not only on physical activity skills but also in Interaction. However, he found the amount of special assistance provided was inadequate. Epileptic students were rated poorer than most on Activity, Direction, and Idea dimensions. However, 47% received no special assistance or instruction.(Guerin:184) Results also showed that the lowest overall performance was in the hyperactive group(the children were taking medication). 48% of those children received no special assistance.(Guerin:184)

Matthews et al. also studied school performance of epileptic children. They concluded that epileptic children had poorer self-concepts than the control groups of diabetic and healthy children. The epileptic children also indicated they felt they had little control over their academic achievement and generally expressed little enthusiasm about school. Gliebe felt the large hurdle confronting epileptic children tended to be of a social nature rather than a physical nature due to the high success rate of treatment.

Diabetes was also mentioned as a common disorder in children. Precautions were listed which would be helpful for the teacher to know in case of emergency. However, other than diet and exercise restrictions, the diabetic child's school agenda seemed similar to nonaffected students.

Asthma had been described by Parcel and Nader as the most common chronic health problem in school children. Schneider et al. stated that

a subcommittee of the American Academy of Pediatrics attributed asthma as being a leading health-related cause of absenteeism. Freudenberg et al. found as the result of tte first phase of a four-year study that school personnel often did not have adequate information concerning the asthmatic and his/her particular course of medical management. Poor communication between the parents and the teachers was found to esist. They also found that teachers were unsure of the limitations of the child and often were overly restrictive in physical education classes.

Schneider et al. did a two-year study in Dallas to assess the impact of a special exercise program for asthmatic students. They found that in the first year the children in the experimental group had fewer absences and a lower "weighted severity of attack" score than the control group. However, the parameters were not significantly different during the second year. (Schneider et al.: 94-95)

Parcel and Nader did a study of the benefits obtained from a seven-month asthma education program for 13 students. The results showed that of five parameters being measured, the only one to show significant change was the "health locus of control," with most of the children demonstrating movement in the internal direction. (Parcel and Nader:454)

Glines and McGovern stated that children who demonstrate learning or behavior problems may actually be suffering from allergies. Citing the works of clinical ecologists, they listed a myriad of mental and physical aberrations which could be "triggered by allergic reactions." (Glines and McGovern:60) They encouraged school personnel to become aware of the host of causative agents and to devise a plan to minimize

the allery-producing potentials which exist in the school setting. Baker and Baker found as the result of their research that specific speech and hearing problems could be related to allergic rhinitis and asthma. Flint and Rapaport also hypothesized that various types of behavior suggestive of learning disabilities could be the result of allergic responses.

Another type of chronic health problem discussed was that of congenital heart disease. Chameides discussed the most common types of disorders and presented some general considerations for the classroom teacher. Individual decisions about physical activities were recommended, usually relying upon the judgment of the child as to his/her limitations. Affected children tended to get tired or short of breath when reaching their limitations. He stressed the need for periodic reevaluation of the activity levels of those children with aortic stenosis, due to the changes that occur with that particular disease. The value of a solid education was emphasized by Chameides, citing potential limitations one's affliction could place on him/her in the job market as an adult.

Other cardiovascular problems were briefly mentioned in the paper. Hypertension and atherosclerosis were identified as probably having occurred in more children than previously realized. Sailors described a project in Yonkers involving the screening of 5399 third, seventh and tenth graders. Thirty-six of those screened were sent for further medical evaluation. Weidman pointed out that hypertension in children may not present any noticeable symptoms. Loggie reviewed numerous studies investigating the relationship of potential causative agents to hypertension. She stressed the need for routine blood pressure measurement of children.

Although hypertension may not present any observable changes in school children, the literature reviewed implied that the schools were a good place to start with health education concerning hypertension, atherosclerosis, and other predisposing factors to adult cardiovascular disease. Sailors found that the hypertension project in Yonkers did promote a "consciousness" about blood pressure in the students. (Sailors: 376) Crittenden cited data suggesting atherosclerosis could begin developing in childhood. He also ennumerated other predisposing factors, including obesity, smoking, high cholesterol diets and hypertension. He felt that health education should promote proper diet, exercise and stress lifestyle modifications which would reduce the predisposing factors.

Coates and Thoresen discussed obesity, citing not only its probable relationship to hypertension and other physical problems, but also its relationship to psychosocial problems. They cited studies which concluded that overweight children usually retain the problem as adults. They insinuated that children were more likely to be amenable to changes in habits than adults, and therefore, an effort should be made to help them.

Humphrey also cited the magnitude of the problem of overweight children. She discussed a study done on 1953 children which yielded 26.8 percent being classified as either overweight or obese. Humphrey reviewed studies concerning weight reduction which suggested exercise and behavior modification offered the most potential. Due to the expense and time commitment of treatment, many children were not being helped with their weight problems. Therefore, she felt that the school could provide an educational environment where large numbers of children could receive

help.

Ballentine discussed dietary changes which have occurred to the detriment of the health of everyone, especially children. Not only did he discuss the physical problems possible, but also mentioned the detrimental effects sugar consumption and food additives are said to present. Citing problems with experimentation on humans as to the relationship between diet and disease, he felt that enough circumstantial evidence existed that mandated a need for diet modification.

Dietary habits also seemed to have an effect on learning as described by Clark. She cited the case of a boy whose academic performance improved significantly after two years of a supervised diet regimen, emphasizing protein and vitamins and restricting carbohydrates. She especially stressed the importance of adequate dietary protein for healthy brain development. Charlton-Seifert et al. also stressed the relationship between diet and learning, citing improvement in "concentration" in children attending a reading clinic at Akron University when junk foods were eliminated from their diets.(Charlton-Seifert et al:214)

Pertz and Putnam cited numerous studies done on malnourished children which examined the relationships between nutrition and various aspects of learning. Some of the studies reviewed suggested that age level during which the malnutrition occurred was a crucial factor. The earlier the malnutrition occurred, the increased likelihood of cognitive problems.

Stronch analyzed not only the relationship between diet and learning, but also noted a 1977 study by Williams which showed personality improvements in 17 girls as a result of diet modification. He also discussed the Feingold diet which stressed the elimination of food additives and

natural salicylates from the diet.

The literature pointed out several chronic health problems which may be present and be misinterpreted as learning disabilities, such as allergies and nutrtional problems. One other health problem which could manifest itself with cognition problems was the hearing problems often associated with otitis media. Brandes and Ehinger found in a study that middle ear disease presented problems with auditory perceptual tasks. Cass and Kaplan concluded from a study done in the Millis school district in Massachusetts that impedance measurement used in conjunction with pure-tone screening was beneficial in identification of hearing impairments. Many studies had previously suggested that social stigma was attached to hearing disease. However, a study by Kennedy and Bruininks seemed to refute the earlier investigations. They found that children with hearing disorders had been more accepted by other students than had been previously determined.

FINDINGS

I. General Findings:

A. There was not much study done in the areas of adjustment and performance in school of students with chronic health problems.

B. Teachers generally were not prepared during their college education to handle situations involving students with chronic health problems.

C. Teachers generally were not prepared during their college education to be cognizant of the effects of medications taken by students with chronic health problems.

D. Teachers have not been prepared for self-analysis of feelings and attitudes toward chronic illness, its treatment, and especially toward the possibility of death of a terminally ill student.

E. Many school systems did not have formal codes regarding the administration and storage of medication taken by students.

F. The teacher's observation and communication skills seemed to be vitally important when dealing with a child with a chronic health problem.

G. Flexibility was a necessary requirement of the teacher with a student with a chronic health problem in his/her classroom.

H. Uppermost in the minds of children with chronic health problems was the desire to be treated as "normal" and to be accepted by his/her peers and teachers.

I. Many chronic health problems seemed to affect a child's school performance or had the potential to do so.

J. There was a need for a multidisciplinary approach for the total physical, emotional and educational well-being of the child with a chronic health problem.

II. Specific Findings:

A. 10 percent of the child population "will suffer a chronic disease before the age of 15."(Williams and Baeker 1983:205)

B. "...an estimate of 3.3 to 4.8 million children...would be included in the category 'other health impaired' as defined by the Education for All Handicapped children Act of 1975 (P.L. 94-142)." (Isaacs and McElroy 1980:318)

C. "The incidence of hyperactivity ranges from 4-10 percent of the total school population in the United States." (Kalechstein et al. 1979:20)

D. "The incidence of hemophilia averages 1:4000 males, making it the third most common hereditary disease in the world today." (Inman and Corrigan 1980:137)

D. Hypertension has a "15-20 percent incidence among American adults, with perhaps a 2 percent incidence in children 12-18 years old." (Sailors 1983:374)

E. "The incidence of congenital heart disease is 8/1000 live births; and of these, two children will have an abnormality of such severity as to require intervention during infancy." (Chameides 1979:205)

F. "According to the American Optometric Association...'four out of ten grade-school children are visually handicapped for adequate school achievement." (Spohn 1981:94)

G. "At least 90 percent of the hearing problems met in a school-age population are related to minor, non-painful, non-draining cases of otitis media causing a 15-20 decibel hearing loss." (Cass and Kaplan 1979:557)

H. "Otitis media is one of the most common infectious diseases in children, especially those below the ages of six and seven years." (Brandes and Ehinger 1981:30)

I. "Current statistics indicate that approximately half a million American children between the ages of six and twelve suffer from hearing loss to some degree." (Mollick and Etra 1981:42)

J. "One of every 320 children has epilepsy." (Matthews et al. 1983:10)

K. "88 percent of all persons with epilepsy have their first attack before age 20." (Gliebe 1979:88)

L. "...nearly 1 million American children suffer from diabetes mellitus..." (Wentworth 1981:42GS)

M. "Obesity among children and adolescents is associated with increased risk of a variety of physical and psychological problems." (Coates and Thoresen 1978:143)

N. "More than 350 million children (seven out of every ten) under the age of six - 20 million of them in the United States alone, suffer from the effects of malnutrition." (Clark 1982:304)

O; "At least 2 to 3 percent and perhaps as many as 4 to 7 percent of the school-age children in the United States, approximately 2 million children, at some time suffer from asthma." (Schneider et al.:1980:92)

CONCLUSIONS

The literature revealed that a significant number of American school children are afflicted with some type of chronic health problem. Many of those children have been placed on medication regimens as part of their treatments. Regardless of the specific disease or disorder involved, most of the children seemed to present concerns which would be classified as psychosocial. The potential seemed to exist for interference with school performance as a result of the psychosocial problems, or in some cases as a result of the disease process itself or the medication the child was taking.

It was stressed that school was of paramount importance to most children with chronic health problems. Generally, most groups of children were concerned about peer and teacher reactions to their illnesses. In most cases it was recommended that the teacher create an atmosphere of acceptance and not overprotection, or conversely, exclusion of the child with a health problem. Communication skills were also found to be important for educators. The ability to interact effectively with the child was found to require that the teacher be able to identify her/his own feelings and understandings of given health problems. Communication was also required between families and medical personnel in order to most effectively meet the needs of a child with a chronic health problem.

The teacher's observation skills were identified as being very important. In the cases of children with diabetes, asthma, epilepsy, and hemophilia, the ability to observe and react quickly and appropriately in an emergency assumed added importance. It was noted that often the teacher's opinions were not sought, in spite of the fact that they

spend more hours of direct contact with the child than anyone else five days per week.

The literature also seemed to imply that teachers were not given the train.ng to deal with mild to moderate health problems. It was apparent that in many cases teachers were not only misinformed about some health problems, but actually were apprehensive and had some degree of self-conflict over the management of certain afflicted children.

In addition to classifiable health problems such as epilepsy or diabetes, less readily definable health problems were also found to exist in children. Learning problems were found to exist in children with poor nutrition, in children with allergies, in children with visual or hearing problems. In those cases, the teacher's input could be quite useful in identifying some of the underlying causes of learning problems.

It was found that with many of the health problems, the child seemed "normal" much of the time. The problems potentially causing the most change over time were cancer and aortic stenosis. The problems potentially having the most absenteeism were asthma, hemophilia, and cancer.

The existence of chronic health problems often presented opportunities in the area of health education. It was the consensus of opinion that the classmate of a chronically ill child should be given correct information(not violating the privacy of the affected child, however) about the nature of given diseases. As a result, fact would replace myth, and hopefully, provide for better acceptance of the affected child. In some instances, it was suggested that the affected child may wish to personally share information about his/her disease or its treatment with the other

children in class.

Health education in the area of nutrition was also found to exist within the school setting. Health habits to counter obesity were also recommended. Blood pressure awareness was also found to be an area in which health education could take place. The issue of death education was also suggested in the case of a classmate's death. The school setting seemed to be an ideal place because of the large numbers of children who would benefit, as suggested by Humphrey.

Counseling functions of the schools were also found to be important. Those services would be extremely important in guidance on career decisions made by the hemophiliac child or the child with a severe congenital heart defect or possibly even the epileptic child.

Much of the literature reviewed was not of an empirical nature. In fact, many of the authors cited the fact that little research had been done in the area of chronic health problems and subsequent school performance. However, it was apparent that all of the conditions mentioned seemed to have a psychosocial component which affected scholastic performance or had the potential to do so. Some of the conditions described also had a physical component which required alteration to some degree of the various activities included in the school program. The most important point gleaned from the research was that the teacher was vitally important in creating an atmosphere of acceptance and one in which the child with chronic health problems can have his educational potential maximized.

RECOMMENDATIONS

It is recommended that:

1. Teacher education programs should include a course dealing with health problems the teacher might encounter in the classroom, as well as information about medication students might be taking as part of the treatment for a given health problem. Perhaps the course could also include information from special education which would be helpful for the regular classroom teacher. A section on handling learning disabilities in the regular classroom could be the third part of the course. The three areas should make an informative one semester course.

2. Further study should be done for the purpose of evaluating health problems and their relationship to school performance.

3. Attempts be made to have a multidisciplinary approach taken whenever a child with a chronic health problem is placed in a regular classroom.

4. Attempts should be made to promote health education in the classroom whenever it is appropriate.

5. The classmates of a chronically ill student should be presented with factual information to supplant myth and rumor.

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